**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**


**APPEAL FROM THE EXAMINER TO**
**THE BOARD OF PATENT APPEALS AND INTERFERENCES**


In re Application of:       Kevin David Potter

Application No.:            10/532,438

Filing Date:               December 28, 2005

Examiner:                  Nathan J. Bloom

Art Unit:                  2624

Confirmation No.:          9117

For:                       POSITIONAL MEASUREMENT OF A FEATURE WITHIN AN
                           IMAGE

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**VIA EFS-WEB**
**MAILSTOP: APPEAL BRIEF-PATENTS**


**RESPONSE TO NOTIFICATION MAILED NOVEMBER 3, 2009**


Dear Sir:

    In response to a Notification mailed November 3, 2009, Appellant submits this response to a request to include the status of canceled Claims 1-60 and 68 and 78-89 in the status of the claims section.

    Appellant also wishes to thank Supervisory Patent Examiner Daniel Hunter for agreeing to a conference call on December 1, 2009, and for confirming the requirements for responding to the Notification. In view of the conference call, this paper includes the following:

    Status of Claims that begins on page 2; and

    Claims Appendix that begins on page 3.

## STATUS OF CLAIMS

Claims 61-64, 66-67, 69-72, 77 and 90-99 are pending in the present application. Claims 1-60, 68 and 78-89 were previously canceled without prejudice. Claims 61-64, 66-67, 69-72, 77 and 90-99 have been rejected pursuant to an office action made final and mailed February 19, 2009 (hereinafter, "the Final Office Action"). Claims 65 and 73-76 were canceled after the Final Office Action. Claims 61-64, 66-67, 69-72, 77 and 90-99 are being appealed; the rejection of Claims 61-64, 66-67, 69-72, 77 and 90-99 is to be reconsidered and removed.

## CLAIMS APPENDIX: LISTING OF CLAIMS

1-60.        (Canceled)

61.        (Previously Presented)  A method for determining coordinates of a feature comprising:

      providing a first image including the feature, the first image comprising a plurality of pixels;

      determining a first estimate of coordinates of the feature to within a fraction of a pixel;

      translating the feature relative to the pixels by a pixel translation value, wherein the sum of the pixel fraction and pixel translation value is an integer value;

      determining a second estimate of coordinates of the translated feature to within a fraction of a pixel; and

      summing the pixel fractions of the first estimate with the second estimate to derive a refined estimate of coordinates.

62.        (Previously Presented)  The method according to claim 61, wherein each of the first and second determining steps comprise:

      correlating the feature and the image using a predetermined correlation function to determine coordinates of the feature to the nearest pixel;

      evaluating the correlation function at a plurality of pixel positions in the neighborhood of the determined coordinates to provide a plurality of values;

      fitting the plurality of values to a further function; and

      differentiating the further function to determine its turning point, whereby coordinates corresponding to the turning point provide coordinates of the feature.

63.        (Previously Presented)  The method according to claim 62, wherein the correlation function is evaluated at a plurality of sub-pixel positions.

64.        (Previously Presented)  The method according to claim 63, wherein the sub-pixel positions are closer in proximity to the determined coordinates than the pixel positions.

65.        (Canceled)

66.        (Previously Presented)  The method according to claims 62, wherein the predetermined correlation function is a normalized greyscale correlation function.

67.        (Previously Presented)  The method according to claim 61, wherein the translating step, second determining step and summing step are repeated at least once.

68.        (Canceled)

69.        (Previously Presented)  An apparatus for determining a position of an object comprising:

        an image capture device arranged to provide a captured image encompassing the object, the captured image comprising a plurality of pixels; and

        an image processor arranged to receive the captured image and determine the position of the object by executing the method of claim 61.

70.        (Previously Presented)  The apparatus according to claim 69 further comprising:

a monitor arranged to receive and display the captured image; and

an object selection means arranged to select a further object within the displayed image and to identify the further object to the image processor.

71.        (Previously Presented)  An apparatus for determining a position of an object comprising:

        an image capture device arranged to sequentially provide a plurality of captured images of an object, each captured image having a plurality of pixels;

        an image processor arranged to sequentially receive the plurality of captured images and determine the position of the object from the plurality of captured images by executing the method of claim 61; and

        a position comparator arranged to compare the determined position of the object for the plurality of captured images and identify whether the determined position changes in the plurality of captured images.

72.        (Previously Presented)  The apparatus according to claim 71 further arranged to determine the change in the determined position, the change selected from the group consisting of magnitude, direction, and combinations thereof.

73.        (Canceled)

74.        (Canceled)

75.        (Canceled)

76.        (Canceled)

77.        (Previously Presented)  A method for determining coordinates of a feature comprising:

        providing at least one image including the feature, the at least one image comprising a plurality of pixels;

        correlating the feature and the at least one image using a predetermined correlation function to determine coordinates of the feature to the nearest pixel;

        evaluating the correlation function at a plurality of sub-pixel positions in the neighborhood of the determined coordinates to provide a plurality of values and fitting the plurality of values to a further function; and

        differentiating the further function to determine its maximum, whereby coordinates corresponding to the maximum are coordinates of the feature to within a fraction of a pixel.

78-89.    (Canceled)

90.        (Previously Presented)  A method for determining coordinates of an object, the method comprising the steps of:

        capturing at least one first image and at least one second image of the object, each image being captured having different coordinates with respect to the other;

        determining the position of the object within each image, wherein determining includes;

            providing the first image including a feature, the first image comprising a plurality of pixels;

            determining a first estimate of coordinates of the feature to within a fraction of a pixel;

            translating the feature relative to the pixels by a pixel translation value, wherein the sum of the pixel fraction and pixel translation value is an integer value;

            determining a second estimate of coordinates of the translated feature to within a fraction of a pixel;

        summing the pixel fractions of the first estimate with the second estimate to derive a
                refined estimate of coordinates; and

        comparing the determined positions of the object to determine dimensional changes.

91.     (Previously Presented)  The method of claim 61, wherein the refined estimate of coordinates is recorded on a computer readable medium.

92.     (Previously Presented)  The method of claim 90, further comprising determining a 2-dimensional position of the feature within the at least first image and the at least second image, wherein a position of the at least second image is known relative to the at least first image.

93.     (Previously Presented)  The method of claim 92, further comprising calculating a 3-dimensional position of the feature from the 2-dimensional position for the at least two images.

94.     (Previously Presented)  The method of claim 61, further comprising determining coordinates of the feature within a second image, the position of the second image being known relative to the first image.

95.     (Previously Presented)  The method of claim 61, further comprising determining a difference in position of the feature between the first image and at least one second image, wherein the at least one second image includes coordinates and has a position known relative to the first image.

96.     (Previously Presented)  The method of claim 61, further comprising superimposing the first image and a second image to provide a superimposed image, wherein the position of the second image is known relative to the first image, and wherein the feature is substantially in registration.

97.     (Previously Presented)  The method of claim 61,wherein the method is applied for monitoring an aircraft structure.

98.     (Previously Presented)  The method of claim 61, wherein the first image is captured with an image capture device.

99.     (Previously Presented)  The method of claim 90, wherein the coordinates are recorded on a computer readable medium.

# CONCLUSION

Appellant submits that this paper complies with the request set forth in the Notification mailed November 3, 2009. No new matter is introduced with this response nor does this response amend the Appeal Brief dated October 16, 2009. The response provides a status of cancelled Claims 1-60, 68, and 78-89 in the Status of the Claims section. A Claims Appendix is also provided and identifies the status of all claims.

This response is timely filed and avoids dismissal of the appeal. No extensions to the shortened period for reply are believed to be required. In the event that any additional time is needed for this filing, please consider this a petition for an extension of time for any needed extension of time pursuant to 37 C.F.R. § 1.136 or any other section or provision of Title 37. Appellant respectfully requests that the Commissioner grant any such petition and authorize the Commissioner to charge Deposit Account No. 07-0153 of Gardere Wynne Sewell LLP and to reference Attorney Docket No. 127723-1005. Please credit any overpayments to this same Deposit Account.

This is intended to be a complete response to the Notification mailed November 3, 2009.

Dated: December 3, 2009

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Respectfully submitted,

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